IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	
Tal Drory et al.	§	Confirmation No.: 6932
	§	
Serial No.: 10/814,579	§	Group Art Unit: 2161
	§	
Filed: March 31, 2004	§	Examiner: Daye, Chelcie L.
	§	
For: METHOD AND APPARATUS FOR QUERYING SPATIAL DATA	§	Atty. Docket: 200315226-1 NUHP:0240/FLE/POW

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October 16, 2008	**/W. Allen Powell/**
Date	W. Allen Powell

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41 AND IN RESPONSE TO THE EXAMINER'S ANSWER MAILED AUGUST 20, 2008

This Reply Brief is being filed pursuant to 37 C.F.R. § 41.41 and in response to the Examiner's Answer mailed on August 20, 2008. Specifically, this Reply Brief addresses the Examiner's continuing pattern of misinterpretation of Wang et al. (U.S. Patent No. 6,920,446; hereafter "the Wang reference") in view of Shaw et al. (U.S. Patent No. 6,684,219; hereafter "the Shaw reference") and the pending claims. Additionally, this Reply Brief addresses new grounds of rejection presented under 35 U.S.C. § 101 in the Examiner's Answer. In the interest of brevity, Appellants address below only those issues or arguments raised in the Examiner's Answer that are particularly noteworthy. In view of Appellants' attempt to avoid repetition in this Reply, Appellants respectfully request that the Board consider Appellants' complete arguments set forth in the previously filed Appeal Brief.

New Ground of Rejection Under 35 U.S.C. § 101

In the Examiner's Answer, the Examiner presented a new grounds of rejection for claims 1-11 and 21-23 under 35 U.S.C. § 101. Specifically, the Examiner stated the following:

> Claims 1-11 and 21-23 are directed to non-statutory subject matter. In particular, claims 1-11 recite a system for performing query operations with various tables, such as a base table and an index table, along with a module, which has no tangible properties in the claims or in the description. Also, claims 21-23 recite a computer-readable medium with instructions and code for performing certain actions, wherein the medium has not been defined within the specification and the examiner is unsure of its structure. However, the claims lack the necessary physical articles or objections to constitute a machine or a manufacture within the meaning of 35 USC 101. ... They are, at best, functional descriptive material *per se*.
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> Examiner's Answer, pages 3-4.

The Applicant respectfully traverses this rejection. Indeed, the Applicants assert that the present claims are clearly directed to statutory subject matter. Any analysis of whether a claim is directed to statutory subject matter begins with the language of 35 U.S.C. § 101, which reads:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

In interpreting 35 U.S.C. § 101, the Supreme Court stated that Congress intended statutory subject matter to "include *anything* under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 206 U.S.P.Q. 193, 197 (1980) (emphasis added). Although this statement may appear limitless, the Supreme Court has identified three categories of unpatentable subject matter: laws of nature, natural phenomena, and abstract ideas. *See*, *Diamond v. Diehr*, 450 U.S. 175, 182, 209 U.S.P.Q. 1, 7 (1981).

Accordingly, so long as a claim is not directed to one of the three specific areas listed above, the claim is directed to patentable subject matter. Thus, it is improper to read restrictions into 35 U.S.C. § 101 regarding subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitation. *In re Alappat*, 31 U.S.P.Q.2d 1545, 1556 (Fed. Cir. 1994) (citing *Chakrabarty* 447 U.S. at 308).

For example, the fact that a claim includes or is directed to an algorithm is no ground for holding a claim is directed to non-statutory subject matter. *See*, *In re Iwashashi*, 12 U.S.P.Q.2d 1908, 1911 (Fed. Cir 1989). Rather, the proscription against patenting an algorithm, to the extent it still exists, is narrowly limited to *mathematical algorithms in the abstract*, e.g., describing a mathematical algorithm as a procedure for solving a given type of mathematical problem. *See*, *AT&T Corp. v. Excel Communications, Inc.*, 50 U.S.P.Q.2d 1447, 1450 (Fed. Cir 1999). Indeed, the courts are aware that any step-by-step process, be it electronic, chemical, or mechanical, involves an algorithm. *Id.* at 1450.

Thus, inquiry into what is statutory subject matter simply requires "an examination of the contested claims to see if the claimed subject matter as a whole is a disembodied mathematical concept representing nothing more than a 'law of nature' or an 'abstract idea, or if the mathematical concept has been reduced to some practical application rendering it 'useful'" *Id.* at 1451 (citing and quoting *In re Alappat*, 31 U.S.P.Q.2d at 1557). Furthermore, a Section 101 analysis "demands that the focus in any statutory subject matter analysis be on the *claim as a whole*." *In re Alappat*, 31 U.S.P.Q.2d at 1557 (citing *Diehr*, 450 U.S. at 192) (emphasis in original). Indeed, the dispositive inquiry is whether the claim *as a whole* is directed to statutory subject matter. It is irrelevant that a claim may contain, as part of the whole, subject matter that would not be patentable by itself. *Id.*

According to M.P.E.P. § 2106.01, when a computer program is recited in conjunction with a physical structure, such as a computer memory, USPTO personnel should treat the claim as a product claim. Further, computer programs have been directly held by the Federal Circuit to be patentable under 35 U.S.C. § 101 when recited to be stored in a tangible medium. *See In re Beauregard,* 53 F.3d 1583 (Fed Cir. 1995). Indeed, the Commissioner of Patents is quoted in the *Beauregard* case as stating that, "[C]omputer programs embodied in a tangible medium…are patentable subject matter under 35 U.S.C. §101."

With regard to the Examiner's rejection of claims 1-11, Appellants stress that each of clams 1-11 is clearly directed to a "system," as indicated by the respective preambles for each of the claims. A "system" is defined as "a group of devices or artificial objects or an organization forming a network esp. for distributing something or serving a common purpose." WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 1199 (1989). Accordingly, Appellants believe the systems recited in claims 1-11 include sufficient physical structure to comply with M.P.E.P. § 2106.01. Further, the recitations of independent claims 1 and 6 each indicate that the respective systems include "modules" that are adapted to perform certain functions. Thus, Appellants assert that the broadest reasonable interpretation of these claims would require the use of a computer, which indicates that the claims are statutory under 35 U.S.C. § 101. Indeed, Appellants stress that a the Federal Circuit made such a conclusion in view of similar claims (i.e., system claims including functional modules) in *In re Comsikey*, wherein the Federal circuit indicated that the claims were directed to patentable subject matter under 35 U.S.C. § 101. *See In re Comiskey*, 84 U.S.P.Q.2d (BNA) 1670, 1680 (Fed. Cir. 2007).

With regard to the Examiner's rejection of claims 21-23, Appellants assert that the Examiner's arguments are improper because claims 21-23 are directed to functional descriptive material that is recorded on a computer-readable medium, which is statutory, as admitted by the Examiner in the Examiner's Answer. *See* Examiner's Answer, page 4. Specifically, because independent claim 21 recites, *inter alia*, "A *computer-readable*

medium that stores machine-readable instructions, comprising" functional code, as described throughout the specification, Appellants assert that claim 21 is directed to patentable subject matter under 35 U.S.C. §101. (Emphasis added). Indeed, the language utilized in claim 21 is based on the statement by the Commissioner of Patents in the *Beauregard* case. Further, despite the Examiner's assertion with regard to the computer-readable medium that "the examiner is unsure of its structure," one of ordinary skill in the art would certainly understand the meaning of "computer-readable medium," as utilized in the present claims. *See* Examiner's Answer, page 4. Indeed, in view of the specification (including the claims as originally filed), Appellants assert that it would be abundantly clear to one of ordinary skill in the art that the recited "computer-readable medium" refers to a tangible medium that is capable of storing data such that a computer can read it. For example, a computer-readable medium may include a memory, a hard drive, or various other storage devices that would be understood based on the specification (*see, e.g.*, paragraphs 14-19). As such, Appellants respectfully request that the Board overturn the Examiner's rejection of claim 21 and the claims depending therefrom.

For each of the reasons set forth above, Appellants respectfully request that the Board overturn the Examiner's rejection of 1-11 and 21-23 under 35 U.S.C. § 101.

Rejection Under 35 U.S.C. § 103

In the Examiner's Answer, the Examiner maintained the rejection of claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of Shaw. Specifically, on pages 5-10 of the Examiner's Answer, it appears that the Examiner reiterated the same arguments presented in the Final Office Action mailed May 11, 2007. However, the Examiner supplemented these arguments in the Response to Argument section on pages 10-13 of the Examiner's Answer. Accordingly, with regard to the arguments reiterated by the Examiner, Appellants respectfully maintain the position set forth in the previously submitted Appeal Brief. Further, Appellants will address the Examiner's supplemental arguments in detail below.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). However, it is not enough to show that all the elements exist in the prior art since a claimed invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). It is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* Specifically, there must be some articulated reasoning with a rational underpinning to support a conclusion of obviousness; a conclusory statement will not suffice. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Indeed, the factual inquiry determining whether to combine references must be thorough and searching, and it must be based on *objective evidence of record. See In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002).

In the Response to Argument section, the Examiner began by asserting that, contrary to the Appellants assertions, the Shaw reference discloses a module configured to convert a query window into a plurality of values. Specifically, in the paragraph that spans pages 10 and 11 of the Examiner's Answer, the Examiner asserted that column 14, lines 21-56 of the Shaw reference discloses a module configured to convert a query window into a plurality of values. Specifically, the Examiner stated the following:

> Examiner interprets the query process beginning by the user accessing the graphical user interface to correspond to the query window and electing a query transaction and opening the map interface to the database to correspond to converting of the query window. Further, examiner interprets the coordinate points, longitude/latitude coordinates as well as the listing of all the database of choice, the listing of all the libraries within the database, and then the listing of all coverages (i.e., population, obstruction, hydrography, etc.) to correspond to the plurality of values that the query window has been

> converted to. The appellant's own disclosure cites "a window operator may transform the query window into index identifiers based on the index operator, which may be Z-values that are discussed below" (see paragraph [0020]), thus detailing that the conversion of the query window is converted into index identifiers and based on Z-values (wherein Z-values are values of a surface at a particular x, y location). Shaw discusses spatial indexing of data, which is indexing of spatial data (i.e., special data being data that defines a location such as geographical data, or x-coordinates and y-coordinates, or longitude/latitude coordinates), which therefore corresponds to the Z-values. As a result, the argued limitation above has been fully disclosed.
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> Examiner's Answer, page 11.

As set forth in the Appeal Brief, in contrast to the presently claimed features, the portion of Shaw cited by the Examiner relates to a user interactively selecting databases and libraries used for performing searches within a geographical area of interest. Indeed, the cited portion of Shaw merely appears to disclose listing databases related to an area of interest. While the Shaw reference may be interpreted as disclosing a window that is converted into a plurality of objects, the Shaw reference does not appear to include any disclosure relating to converting a window into a plurality of values, such as a plurality of Z-values. Further, while column 14 of Shaw discusses the need to find the objects in the area of interest, it does not indicate how these objects are to be found.

On pages 11 and 12 of the Examiner's Answer, the Examiner argued that the Wang reference discloses creating a scan range for each of a plurality of values converted from a query window with a begin range and an end range value, wherein the scan range includes a stop condition. Specifically, the Examiner stated the following:

> To begin, while the appellants do not give a definitive definition of a scan range, as understood by the description in paragraph [0030], the operator may provide a scan range for each of the plurality of Z-values. Therefore, a scan range is merely a range of values which correlate to the Z-values given. As such, Wang disclose at column 7, lines

> 50-64, wherein Table 4 shows the column heading 'Block Start' and 'Block End' with interval ranges under each column. Also, the citation states, "In Table 4, the merged level-6 z-regions are in a block at z-level 4 that starts at [2,2] and ends at [3,3]." Examiner interprets the 'Block Start' as the begin range value and 'Block End' as the end range value. Further explanation with reference to the intervals and range values can be found at column 5, lines 27-37. Next, Wang discloses at column 4, lines 22-30, wherein "The z-regions are iteratively split until a termination criterion is met." Examiner interprets the termination criterion to correspond to the stop condition. As a result, the argued limitation above has been fully disclosed.
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> Examiner's Answer, page 12.

As set forth in the Appeal Brief, Appellants reiterate that the cited references do not disclose features related to creating a scan range for each of a plurality of values converted from the query window with a "begin range" value and an "end range" value, wherein the scan range includes a stop condition. In contrast to the Examiner's interpretation, the Wang reference merely discloses a Z-value ordering scheme and resulting granularization of the Z-values. Appellants stress that the portion of the Wang reference relied upon by the Examiner is directed to a *merge operation*, and a merger operation is entirely different from a scan. Specifically, Table 4 of Wang is merely an example for *merging* neighboring Z-values that shows a range of blocks and their corresponding Z-codes. This does not include a scan range and certainly not a scan range for *each* of a plurality of values converted from a query window. Table 4 of Wang includes the words "block start" and "block end," but this is only showing the start and end of the neighboring Z-values to be merged to a larger Z-value in a higher level. Indeed, the alleged stop condition of the Wang reference is apparently a condition for merging or splitting Z-values, whereas the recited "stop condition" is a stop condition on scanning the index (*see*, *e.g.*, Application, para. [0034]). There is no disclosure or suggestion in Wang, Shaw or their hypothetical combination of a module configured to create a scan range for each of the plurality of values, much less one

that creates a begin range value and an end range value from the plurality of values, wherein the scan range includes a stop condition.

On pages 12 and 13 of the Examiner's Answer, the Examiner argued that the Wang reference discloses skipping a second scan, if the second scan is determined to return the result. Specifically, the Examiner stated the following:

> To begin, the term "if" is a relative term which is considered alternative language. Next, Wang discloses at column 7, lines 58-64, wherein "the merged level-6 z-regions are in a block at z-level 4 that starts at [2,2] and ends at [3,3]. The z-code associated with this block is 0011. The remaining z-regions are still at level 6 since they have not been merged at 116. The merge at 116 is repeated until there are no further neighboring z-regions (at any z-level) with z codes that differ only by the least significant bit." Examiner interprets the repetition of the merge as representing the return of the result not determined, which thereby corresponds to the skipping the second scan *if* the second scan is determined to return the result. As a result, the argued limitation above has been fully disclosed.
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> Examiner's Answer, pages 12-13 (emphasis in original).

It is unclear to the Appellants what the Examiner is attempting to assert by claiming that the term "if" is a relative term that is considered alternative language. However, regardless of the Examiner's assertions regarding the term "if," Appellants stress that the cited portion of the Wang reference is directed to a *merge operation*, not to a *scan*. These are entirely different. Further, Appellants assert that repeating a merge operation has no apparent correlation to "skipping" a scan.

The comments set forth above are believed to address the supplemental arguments provide by the Examiner in the Response to Argument section of the Examiner's Answer. In addition to the comments set forth above, Appellants maintain the positions set forth in the previously submitted Appeal Brief. Accordingly, Appellants respectfully request that the Board consider Appellants' complete arguments set forth in the previously filed

Appeal Brief. In view of the present Reply Brief and the previously submitted Appeal Brief, Appellants request that the Board overturn the Examiner's rejections to all pending claims.

Conclusion

The foregoing are only reiterative and supplemental points regarding the reasons why the pending claims are allowable. Appellants rely upon all of the reasons advanced in the Appeal Brief, and respectfully request that the Board carefully review the claims in view of these arguments and indicate the allowability of the claimed subject matter.

Respectfully submitted,

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/W. Allen Powell/
W. Allen Powell
Reg. No. 56,743
(281) 970-4545

CORRESPONDENCE ADDRESS:
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400